Subject: Re: Two or Three Sampling Stages
Posted by Bridgette-DHS on Fri, 04 Apr 2014 12:32:49 GMT
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Following is a response to msg_1710, from DHS Senior Sampling Specialist, Ruilin Ren:

1. About the sampling procedure
Most of the DHS surveys use a two-stage cluster sampling procedure and use the latest population census frame. The primary sampling unit (PSU) is the census "Enumeration Area" (EA). After the selection of the EAs, there is a household listing operation. The household listing operation aims to visit all the EAs selected in the first stage and construct a complete list of all residential households in the EA. In the second stage, a certain number of households are selected from the updated list of households. All the selections are random selections.

In the case where a census frame is lacking, like in the Democratic Republic of Congo, there is often a need to select the sample in three stages. In the first stage, a certain number of PSUs (communes) will be selected. After the selection of the PSU, a list of villages (SSU, second sampling unit) in the selected communes will be established. At the second stage, one village will be randomly selected from the list. Then proceeds the household listing in the selected village. In the third stage, the sample households are selected. In summary, when there is no census sampling frame available, the sampling procedure might be multistage, that is, more than two stages.

2. About pooling two surveys
I do not think the sampling procedure matters if pooling different surveys together. But attention should be paid to the sampling weight if the surveys use normalized weights, such as for all the DHS surveys. Since the normalized weight has no unit, it is survey specific. You need to de-normalize the sampling weight first before pooling. De-normalizing means to divide the sampling weight by the overall sampling fraction (number of units selected over the total number of units in the target population), for both household weight and the individual weight, respectively. For example, divide the weight by the ratio of households in the sample for the survey to households in the population, and similarly for women.

3. Probability proportional to size (pps)
This is a sampling procedure in which the chance of a unit being selected in the sample is proportional to the measure of size of the unit. For example, the DHS sampling procedure selects the EAs in the first stage often using PPS sampling, and the measure of size of the EA is usually the number of households in the EA. This means that EAs with a large number of households will have a larger chance to be selected in the sample compared to EAs having a small number of households. This sampling strategy aims to increase the efficiency of the sampling and reduce the sampling errors.